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Project No. P0111-02

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U.S. Nuclear Regulatory Commission
Washington, DC 20555

Response Letter
NRC Comments Regarding
Remedial Assessment Work Plan, Dated February 1991
Fansteel Metals
Muskogee, Oklahoma

Dear Mr. Swift:

We have received and reviewed your letter of December 2, 1991 containing the U.S. Nuclear Regulatory Commission's comments regarding the Fansteel Metals (Fansteel) remedial assessment work plan. Our response to these comments is included in the following material. Some of the comments have resulted in changes to the text of the Remedial Assessment work plan. Copies of the changed pages have been enclosed as an attachment. Vertical lines are present in the left margin of the changed pages to identify the portions of the text which have been revised in response to your comments.

Comment - Page 3-14, Section 3.6:

Background sampling and measurements are to be characteristic of the area surrounding a site; 8 to 10 sampling locations are typically selected at distances of 1 to 10 km from the site in all compass directions.

Response: The background sampling plan for the remedial assessment has been modified. The background sampling plan contained in the revised Pond Closure Investigation work plan dated December 19, 1991 will be utilized. This sampling plan involves instrumental measurements and analytical samples at ten off-site locations. Section 3.6 of the Remedial Assessment work plan has been revised to reflect these changes.

Comment - Page 4-2, Section 4.1.1, Paragraph 3, Sentence 1:

"Three soil samples will be selected for analysis from each of the shallow borings." Subsurface evaluation of the site should be focused on known suspect areas and those identified from the screening effort. The decision to select 3



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soil samples from core borings is unclear; the plan should discuss the rationale for the selection of the 3 samples.

Response: It must be stressed that the Remedial Assessment work plan calls for the selection of three soil samples from each of the 71 soil borings. These soil borings have been tentatively located in Figure 12. However, it should be understood that the detailed location of soil borings, monitoring wells, etc. will be subject to change based on information developed during the course of the actions carried out in the Remedial Assessment work plan. Additional borings may be added to the program if warranted by survey results.

Comment - Page 4-12, Section 4.2.7.1:

See comments on Page 3-14, Section 3.6 above.

Response: The background sampling plan for the remedial assessment has been modified. The background sampling plan contained in the revised Pond Closure Investigation work plan dated December 19, 1991 will be utilized. This sampling plan involves instrumental measurements and analytical samples at ten off-site locations. Section 3.6 of the Remedial Assessment work plan has been revised to reflect these changes.

Comment - Page 4-18, Section 4.3, Paragraph 3:

A reference is made to action levels of gross alpha and gross beta in soil and sediments with units of pCi/l, these should be in units of pCi/g.

Response: The paragraph has been modified as needed.

Comment - Pages A-6, A-10, A-11:

References to Figure 3 apparently should be to Figure 12.

Response: The figure reference has been corrected.

Comment - Page A-8, Section A.1.3.2.4., Paragraph 5, last sentence:

Provide additional information defining "An amount of nearby off-site data will also be accumulated for comparison purposes."

Response: This refers to the off-site background radiation measurements. A minimum of ten samples with associated instrument readings will be obtained as specified in Section 3.6 of the Remedial Assessment work plan.

Comment - Page A-9 Section A.1.3.2.5., Paragraph 3:

Gross alpha and beta analyses can be used as a screening technique; however, for the purpose of comparing the site status to the NRC guidelines for cleanup of radionuclides specified in Federal Register Vol. 46, No. 205, October 23, 1981, Notices, p. 52061 (46 FR 52061), specific radionuclide analyses must be performed to quantify radionuclide concentrations in soil and other solid samples.

Response: This paragraph does refer to a screening process whose purpose is to determine only if the subsurface soil materials in the study areas differ substantially enough from the surface soil in levels of radioactivity to require separate characterization. For these purposes, the use of gross alpha and gross beta activity measurements is entirely adequate.

Comment - Page A-10, Section A.1.3.2.7:

What has been determined to be "appropriate detection instrumentation"? Provide type, manufacturer and model or define performance requirements relative to established guidelines. This section contains the first reference to "general site scanning." Provide additional details, e.g., instrumentation and procedures.

Response: Appropriate detection instrumentation has been identified in Section 3.6 of the Remedial Assessment work plan. "General site scanning" refers to the grid survey and any other radiation measurements that may be performed.

Comment - Page A-18, Section A.3.1.3.6, Paragraph 2:

Does this discussion relate to total uranium and total thorium or to specific isotopes?

A Statement is made that the detection limit for uranium in water, 1 ppb, is equal to 0.7 pCi/l, and the detection limit for uranium in soil, 1 ppb, is equal to 0.7 pCi/g. The conversion from ppb to pCi/l for water is correct, but the conversion from ppb to pCi/g for soil is incorrect. It should be 1 ppb in soil is equal to $7.0\text{E-}4$ pCi/g.

Likewise, there is also a statement on page A-18 which says that the detection limit for thorium in water, 10 ppb, is equal to 2.2 pCi/l, and the detection limit for thorium in soil, 1 ppb, is equal to 0.2 pCi/g. The conversion from ppb to pCi/l for water is correct, but the conversion from ppb to pCi/g for soil is incorrect. It should be 1 ppb in soil is equal to $2.2\text{E-}4$ pCi/g.

Response: The discussion refers to total uranium and thorium. The tests for which these detection limits are quoted are chemical determinations and so are not isotope specific. The detection limits in terms of picocuries per gram of soil have been corrected.

Comment - Page A-66, Sections A.6.1.8 and A.6.1.9, and Page A-69, Section A.6.2:

The licensee is requested to commit to calibration by qualified parties as described in Section A.6.1.8.

Please also see enclosure 2 for separate comments on review of the conceptual Decommissioning Plan, dated February 1991, referred to by Fansteel Metals/Earth Sciences Consultants, Inc., to respond to the previous NRC comments on review of the Remedial Assessment Work Plan, dated June 1990.

Mr. Jerry J. Swift

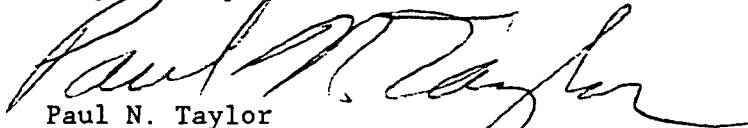
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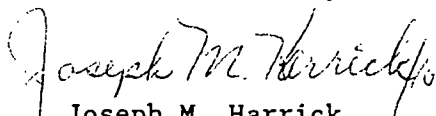
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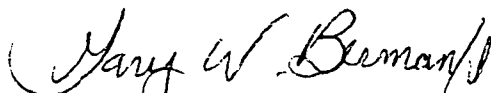
Response: Neither Earth Sciences Consultants, Inc. nor Fansteel is licensed to perform survey instrument calibrations. These calibrations will be performed at the frequencies stipulated by qualified outside vendors.

Should you have any questions regarding the information contained herein, please contact us.

Respectfully submitted,


Paul N. Taylor
Health and Safety Coordinator


Joseph M. Harrick
Project Manager


Gary W. Berman, P.E.
Executive Vice President

PNT/JMH/GWB:tlh

Enclosures